Course Overview for External Evaluators

“Architecture Design Studio: Composition” (48-200)
Coordinator: F02, F04, F05, F06, F07, F09
Taught as Instructor: F99, F00, F01
2nd Year, Architectural Design Studio
18 units, required course for all majors
Course Website: http://www.andrew.cmu.edu/course/48-200/

The 2nd Year Fall Studio is an introduction to architectural design stressing the use of research, analysis, and precedent as a means of developing a rich design process that creates evocative spatial experiences through architecture. Building on the explorations of form and space in the 1st year, the 2nd year students investigate in greater depth the role that program, context, and the physical “elements of architecture” play in creating meaningful architecture. This studio grapples with understanding the design principles underlying the buildings of the past and present, from the broadly theoretical and conceptual, to the real implications of tectonics and sustainability, in order to apply these ideas with intent and significance. The studio programs focus on developing a student's ability to create meaningful, fitting, and poetic architectural ideas, building details, and techniques of communication while dealing with programs that have meaning to the world around us.

The semester includes four projects: Project 1: a short, group “research” project exploring the “elements of architecture” using the shop to create a large-scale “installation”; Project 2: a small, personal space in a natural setting; Project 3: an in-depth, all-semester “building analysis” project, simultaneously with design projects; Project 4: a “Light Museum” annex to the Carnegie Museum of Art with a detailed program.

I have coordinated both semesters of the required 2nd year studios for six years. Each year I help hire and coordinate 4-5 adjunct instructors who are practicing architects from the area. Over the years I have shifted the pedagogy of the studio from one where each instructor created their own projects and we all lectured on favorite topics, to one where I had write the projects in consultation with the instructors, and I present the studio lectures as a series of planned and connected themes. This has had the effect of creating much more cohesion to the content and expectations within the entire 2nd year studio sequence.

I am including in this packet several of the project statements that I have generated over the years, along with examples of student work, all of which is achieved under my close supervision as a “floating critic” for each of the separate studios. The student work (always with a black square in the upper left) is presented in its original format, unedited by me, as the students submit it to the department using a standard “template” or “framework,” with black can range from square at the top left. These templates help the students create portfolios, give a shared identity to the 2nd year studio, and facilitate the departments efforts to promote the school and the students. I initiated these templates in the 2nd year in 2003, and the program has now been adopted by all studios at CMU.

For other materials, including examples of student work, and class handouts, please refer both the course website listed above, as well as my professional website: www.andrew.cmu.edu/user/gutschow/
**F’09 Syllabus**

**OVERVIEW:** This studio is an introduction to architectural design stressing the use of research, analysis, and precedent as a means of developing a rich design process that creates evocative spatial experiences through architecture. Building on the explorations of form and space in the 1st year, we investigate in greater depth the role that program, context, and the physical “elements of architecture” play in creating meaningful architecture. We seek to understand design principles underlying the buildings of the past and present, from the broadly theoretical and conceptual, to the real implications of tectonics and sustainability, and apply these ideas with intent and significance. We will focus on developing challenging architectural ideas, profound building details, and effective ways of communicating them in order to explore architecture’s potential for creating poetic expressions, appropriate shelter, or exhilarated experiences, as well as its ability to embody ideas and impart meaning to the world around us.

Key concepts and terms include:

**COMPOSITION:** “the planned arrangement of parts to form a whole.” Architects compose concepts, spaces, contexts, functions, programs, experiences, elements, structures, materials, drawings and much more. Related to "composition" in graphics, music and all the art, in chemistry...

**ELEMENTS OF ARCHITECTURE:** composition can only take place by a deep understanding the elemental parts of architecture: roof, wall, structure, window, threshold, room, foundation, facade...

**ANALYSIS / PRECEDENT / BUILDING STUDY / DIAGRAM:** The single best way to study architecture, is through architecture. The 2nd year will emphasize the study and analysis of existing architecture as a tool to understand and create a richer architecture for the future.

**CONCEPT:** “a concept brings together ideas, precepts, and effects that create experiential forms.” See also idea, theory, meaning, intent...

**CONTEXT:** “the interrelated circumstances, objects, or conditions in which something exists or occurs,” physically and intellectually. We will focus especially on the effect of SITE on the design process, including the natural landscape, the built environment, and global ecology.

**SPACE:** we build with physical materials, but architecture arises only when we design the spaces around these materials. Through space, we orchestrate human EXPERIENCE.

**PROGRAM:** Architecture is distinguished from the other arts by the fact that it must serve a FUNCTION, often related to well-established building TYPES. A program outlines required functions, but all architects need to interpret programs such that they provide inspiration and specific intent.

**RESEARCH:** as part of the quest for more robust process, we will engage in traditional research about „architecture”, and more profoundly attempt to see the architectural design process itself as a kind of “research,” requiring a sound hypothesis, sustained investigation, and results that must be communicated in a convincing manner to peers.

**COMMUNICATION / DRAWINGS / CLARITY:** since architects do not usually build what they design, their work is about communicating ideas to others clearly, effectively, and provocatively. We will focus both on understanding established drawing types and methods (especially the “section”), and but also develop innovative tools to communicate intent.

**PROJECTS:** The semester will include four projects:

- **Project 1:** a group “research” project exploring the “elements of architecture” using the shop to create a large-scale “installation”
- **Project 2:** a small observation structure for interacting with nature in multiple ways at the edge of a local park
- **Project 3:** a “building analysis” project to run simultaneously with design projects, unique to each studio
- **Project 4:** a “Light Museum” annex to the Carnegie Museum of Art.

Architectural History Exams: Weekly quizzes

Architectural Studio: 2nd Year Fall

F’07 Schedule (Subject to Revision: see www.andrew.cmu.edu/course/48-200)

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<th>Week / End</th>
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<th>Friday</th>
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<tr>
<td>#1</td>
<td>Aug 27 Convocation 1:30-2:30</td>
<td>Shop lectures: AL, CM: 1:30-2:20</td>
<td>Lecture, Library Intro. (MM103)</td>
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<tr>
<td>#2</td>
<td>Shop open Library Closed</td>
<td>Library intro. Library Closed</td>
<td>Lecture / Site / Context &amp; Proj. 2</td>
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<tr>
<td>#3</td>
<td>Review Proj. 1</td>
<td></td>
<td>Lecture, Building Analysis &amp; Proj. 3</td>
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<tr>
<td>#4</td>
<td></td>
<td>Lecture: Greg Lynn</td>
<td>Lecture: Statics (10/4)</td>
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<tr>
<td>#5</td>
<td></td>
<td>Lecture: Andrew Burke</td>
<td>Lecture: Drawings Portfolio (10/1)</td>
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<tr>
<td>#6</td>
<td></td>
<td>Mid-Semester break</td>
<td>Lecture: Building Analysis &amp; Proj. 3</td>
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<td>#7</td>
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<td>Lecture: Architectural History Exam (10/1)</td>
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<tr>
<td>#8</td>
<td></td>
<td>Review Proj. 2</td>
<td>Lecture: Statics Exam (10/1)</td>
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<td>#9</td>
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<td>Lecture: Museum Program</td>
<td>Lecture: Statics Exam (10/1)</td>
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<td>#10</td>
<td>Mid-Semester Break</td>
<td>Lecture: Program Massing Model 2</td>
<td>Homecoming</td>
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<td>#11</td>
<td>Homecoming</td>
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<td>#12</td>
<td>Family Weekend</td>
<td>Lecture: Light Museum Portfolio</td>
<td>Lecture: Louis Kahn</td>
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<td>#13</td>
<td>Mid-Semester Break</td>
<td>Lecture: Light Museum Portfolio</td>
<td>Lecture: Statics Exam (11/1)</td>
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<td>Lecture: Light Museum Portfolio</td>
<td>Lecture: Statics Exam (11/1)</td>
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<td>#15</td>
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<td>Lecture: Light Museum Portfolio</td>
<td>Lecture: Statics Exam (11/1)</td>
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Architectural History Exams: Weekly quizzes

Rosh Hashana Sept. 13-14; Yom Kippur Sept. 22

Ramadan Sept 13 - Oct 13

Drawing Assignments/Portfolios Due: Sept 27, Nov 11, Dec 6

Ramadan Sept 13 - Oct 13

Statics: Recitations Tue. 6:30-8:50pm; Exams Oct 4, Nov 1
Chicago Studio Trip

Studio 48-200
School of Architecture
Carnegie Mellon University

Fall 2006

[gallery]
BUILDING STUDIES: SPACE & STRUCTURE: SUMMER 2009

MINDSET

The single most important source, and tool, for learning about architecture, is architecture. Experiencing and analyzing (good) buildings in person, and over an extended period of time, remains the best way to understand the complex art we call architecture. When travel is not possible, acquiring deep understanding through drawings, photos, and text becomes an essential skill for all architects. The goal of this assignment is to build on your skills from 1st year, and to help prepare you for the upcoming 2nd year “Composition” studio by expanding your ability to analyze and understand iconic works of modern architecture. Your mission is to discover and expose the underlying compositions and resultant experiences of assigned buildings so that they become part of your “visual library” of ideas.

Particular emphasis will be placed on the relationship between solid and void, between space, structure, enclosure, and mass as the basis for composition. For each building, you should ask: How does the structural system shape the space, sensual experience, and movement through the building? How does space help reveal and clarify structure and enclosure? Seek to understand WHAT the architect intended with the overall design and each detail, and WHY the architect “composed” it that way.

YOUR WORK & PROCESS

Research the three modern architects listed on the next page, and select five buildings according to the directions provided. Then use any resources you can locate about your buildings, including internet, libraries, and bookstores, and take lots of visual notes in the form of sketches (avoid words).

Think about, analyze, and seek to understand the design and composition of each building, particularly the relationship of space and structure. Investigate your buildings at different scales, from construction details and materials, to major axes and site context. Imagine yourself walking through the building, and how your senses would be stimulated by both the space and the material structure. This process takes time, effort, and focus: start early, work iteratively, over time.

Search for compositional “principles” in order to discover the architectural language, and the arrangement of important spaces and architectural elements (entry, walls, thresholds, geometry of spaces, circulation, poche, etc.). Think beyond, by focusing on the materiality of the architecture that creates the spaces and experiences through structure and mass. What is the primary structural system? Is the structural system visible? Why? What is it made of? Is it a “load-bearing wall” made by piling up materials, or a “skeletal” system made of interconnected vertical posts and horizontal beams? Is it “assembled” or “poured”? What is the relationship of the structural system to the “skin” and planes that define space? How does the geometric configuration of the structural system affect spatial experiences and movement through the building? What effect does the material, mass, and opacity of the enclosure system have on experience? Why?

Sketch the architecture, diagram separately the major structural and enclosure systems, draw important building elements, transitions, and details. Compare buildings by the same architect, and seek to find underlying design principles or “research agenda,” but also differences between buildings.

ASSIGNMENT: DUE: Mon. Aug. 24, 2009, 1:30pm

1) Choose from your sketch notes, and determine the clearest way of representing the unique composition and architectural intent with regard to the relationship of space and structure underlying each of your 5 buildings.

2) Using a soft but sharp wood pencil, create freehand, but precise drawings of: the main plan(s), major section(s), the structural system, the enclosure system, ingenious details, and how they relate to each other. Avoid simple “views” or perspectives; choose instead a variety of “architectural drawings” (esp. sections and axons!) and diagrams of the physical elements of the architecture. Feel free to borrow from any photos, existing drawings or analytical diagrams you can find that present the most significant design qualities of each building, or create your own interpretations, being sure your representation reinforce the ideas.

3) Carefully select, edit, and compose the most informative drawings (plan & section & structural system required) of each building on a separate, landscape-oriented, 8.5”x11” page.

4) Create a cover sheet with your name.

5) Scan all six pages (5 buildings + cover) and create a single medium-resolution pdf file named: “lastname_summer study”.

6) Submit to archpcserver 2nd year Studios
documents/Second Year

Students with last names A-G

Architect Building Name Location Date
Mies van der Rohe Barcelona Pavilion Barcelona, Spain 1929
Ludwig Farnsworth House Plano, IL 1944
Lake Shore Drive Apts. Chicago, IL 1948-51
New National Gallery Berlin, Germany 1962-68

Students with last names H-M

Le Corbusier Villa Stein at Garches Garches, France 1929
Le Corbusier Villa Jeanneret C.E. Jeanneret Millower’s Association Ahmedabad, India 1951
Villa Savabah, Ahmedabad OR Maisons Jaoul Paris 1953
La Tourette Monastery Eaveux, France 1957

Students with last names N-Z

Kahn, Louis Trenton Bath House Trenton, NJ 1954-59
Richard’s Medical Center Philadelphia, PA 1957-61
Kimball Art Museum Fort Worth, TX 1967-72
Exeter Library Exeter, NH 1967-72

BOOKS / BIBLIOGRAPHY / RESOURCES:

- Goff, R. Louis Kahn: Enlightened Space (2009)
- Brownlie & De Long, Louis Kahn: In the Realm of Arch (1992)
- Lambert, Mies in America (2001)
- Bergdoll & Riley, Mies in Berlin (2001)
- Ching, Fr. Architecture: Form, Space, Order (1992)

In addition, look for the following good sources:

- Brownlie & De Long, Louis Kahn: In the Realm of Arch (1992)
- Lambert, Mies in America (2001)
- Bergdoll & Riley, Mies in Berlin (2001)

http://archweb.andrew.ad.cmu.edu/studio_documentation/Second_Year_Studios/48-200F09_Summer_Building_Study.pdf
DAVID KENNEDY
SECOND YEAR STUDIO
SUMMER ASSIGNMENT
8/28/2006
PROJECT 3 -- BUILDING ANALYSIS

MINDSET
This project is concerned with the HOW and WHY of architecture, leading to discussions on “WHAT is architecture?” It builds on your summer building study, firm in the conviction that the single most important source, and tool, for learning about architecture, is architecture. The goal is to discover a building’s systems & principles, to expose the architectural intent, concept, and language used by the architect to shape that vision, to understand how architecture can express ideas and create experiences at many levels. Architects design and communicate with drawings & models; you should do the same in your analysis; create a way of understanding your building. This is an architecture project.

WORK PROCESS:
0) Depending on your studio instructor, each student will choose or be assigned one building to study over the course of the semester. The best links to the studio projects will be a 20th-century house or a museum.
1) The first step is to gather as much documentary evidence of the architecture of your building as possible, from the original design process to the life of the building since then, from the overall context to the detail level. Go to the library more than once: thorough research takes time. Check internet, books, journals, and especially foreign language sources. Check for reviews of the building after it was built, and see what theoreticians have written about the building since then. Find the graphic and visual analysis that already exists on the building, including those made by the architect during or after the design process. Write a letter to the building owner. Your instructor may send you back several times to look for images or drawings of relevant parts of the building, or ask you to draft to-scale plans from photos if unavailable.
2) Based on the evidence you collect, compose a large poster-sized exhibit documenting your building so that your whole studio can learn from it.
3) Then ask yourself, and discuss with your peers and instructor: “Why does the building look and feel the way it does?” Or: “What makes this building a great piece of architecture?” Try to be as specific as you can, on many levels. Work to go beyond the formal & spatial analysis you did last year. Consider looking at details more closely. Find the concepts or ideas behind the building’s conception. Try to understand the experience beyond just traditional architectural drawings or photos.
4) In consultation with your instructor, choose one or a few related aspects of your building that intrigue YOU, and begin to address these questions. Attempt to communicate your ideas effectively through multiple and varied drawings and models. Drawings should become modes of research & inquiry. Much as in your design projects, this exploration MUST at first be done in multiple media. Using the computer, the sharpened pencil, charcoal or watercolors, will each reveal different insights. A chipboard model will lead to different results than one in resin, wireframe, or hardwood. Investigate the basic orthogonal projections (plan, section, elevation & axo): re-creating those can reveal volumes about how an architect worked, the intent they made visible.
5) After exploring several drawings and media, pick ONE, or combine several to create ONE drawing that most profoundly “captures” the insights you want people to understand about your building. This drawing must be on one large piece of paper. It can combine several types of drawings through overlays or collage, but it must be ‘one drawing,’ as defined by you and your instructor. Although this drawing will not represent your whole building, you should prepare many drafts and revise your drawing several times to be sure it has many layers of information and represents as much as possible. One drawing CAN communicate what makes a piece of architecture great! Try it.
6) Create a single model or 3D analysis according to the same principles.
7) The drawing and model are due to your instructor, and a scan of your drawing are to be submitted to Blackboard on Mon. Nov. 19. A 2pp. “Documentation” of the final work and the whole process using the 2nd year template must be submitted by Dec. 10.
As per the assignment, I investigated the typical organizational strategy of an Alvar Aalto-designed technical university building. Through the study of an Aalto-designed technical university building and contrasting the organizational strategy of the Aalto plan with that of the more recent and highly praised Finnish educational institute plan, I explored the motivations and principles behind the spatial organization of these educational institutions. The Aalto-inspired plans were characterized by a clear distinction between interior and exterior spaces, a focus on the relationship between internal and external environments, and a strong emphasis on the integration of educational and administrative functions. The Finnish educational institute plan, on the other hand, was designed to accommodate a larger student body and to provide more flexibility in terms of space usage. The study aimed to identify key differences and similarities between the two organizational strategies and to understand the implications of these differences for the design of educational buildings. The analysis revealed that the Aalto-inspired plans were more focused on creating a cohesive and harmonious environment, while the Finnish educational institute plan was more geared towards efficiency and adaptability. The study also highlighted the importance of considering the context and the specific needs of the educational institution when designing its organizational strategy.
Le Corbusier built Villa Currutchet in 1949. Located in La Plata, Argentina, this building is situated between two neighboring residences and faces a park. The house was designed for Dr. Currutchet and the main programmatic elements include a medical practice towards the front and a living quarter towards the rear of the house. Designed around the view to the northern park, the peristyle is a key element within the building. My analysis started with the diagramming of these views and circulation, and led to an exploded axon emphasizing the major elements framing these views. This being the only residence that Corbusier built in the Americas, he put a large emphasis on the Five Points of Architecture: pilotis, roof garden, free plan, free facade, and the ribbon window. Therefore, my model of Villa Currutchet detaches into segments. The front brise soleil separates to emphasize the free facade, each floor slice off of vertical columns to show both the free plan and pilotis, the ribbon windows slide out of walls, and a major tree slices through the structure to establish itself on the site. Together forming Villa Currutchet, separated showing the Five Points of Architecture.
the building analysis was a way for the individual to choose a building that he or she had been to within the last year. analysis of the building was described by experience. my analysis of the farnsworth house by mies van der rohe begins with the way mies manipulated both materials and light to set up a dance between spaces and volumes. my analysis starts with my 2-d representation. here i use a series of vertical lines to show the density of the building. these vertical lines begin to set up a rythym, and thus describe the differentiation of the three main spaces of the house, the terrace, the porch, and the house. the 3-d representation takes this idea of a repetition of lines and turns it into a repetition of planes that create a volume. the volume is then augmented by a removal of material. this lack of material defines this space in a way that the juxtaposition of the the volumes of the farnsworth house did. the 3-d representation also strewn the materiality of the house. by using a reflective condition on one side and a matte condition on the other, the differentiation of space that exists and all the same does not exist is present. this idea comes from the glass planes of the farnsworth and how they act both as a spatial defension, but also fade into the landscape.
PROJECT 1 – OBSERVATION / INSTALLATION

THE MINDSET
We will begin the semester with a high-intensity, group design project using the shop and a limited palette of materials to create an installation having to do with observation and interaction with the environment around us. Think of it as research about how architecture filters or mediates between inside and outside, between you and the context around you. The project builds on your “Room” and “Surface” projects last year, particularly the scale of the human body interfacing with architecture, and the use of the shop as a design tool. The team approach should stimulate dialogue and encourage richer and more substantial results in a short spurt of time than is possible by yourself. It also reminds us that all architecture is collaborative and interactive.

THE PROJECT
Each team of students must design and construct a small installation on the front porch of CFA on the nature of “observation” and how we engage with the environment around us in one or more stimulating and evocative ways. Focus on one or all the bodily senses, how we observe and what we see, hear, feel, smell, etc. Explore how we interact with, modulate, control or are transformed by one or all the elements of nature (light, wind, rain, sound, smells, etc.). Use your installation to raise awareness of what it means to “observe” and how we relate to the world around us.

INSTALLATION SPECIFICATIONS
- Each studio will be divided into three teams of approx. 4 students.
- Each studio will be assigned to a small area on the CFA front porch (see diagram next page); the teams within a studio should negotiate so that they all fit
- Each team will be given 2x4s and plywood sheets.
- Each team will be allowed to add one more material (e.g. fabric, cardboard, glass, plastic, sheet metal, wire, mirrors, in a reasonable quantity, to amplify and complete their design intent, but not primarily to increase size.
- No paint or spray paint of any kind allowed.
- Each team may use as many fasteners as necessary
- Minimize waste; attempt to use all materials; work to recycle.
- Each installation must include an overhead component (roof) that shelters, controls or manipulates light, rainwater, views, and the sky
- Each installation must also include a vertical component (wall) that seeks to filter, block, focus, transmit, amplify or otherwise engage the surrounding context in a creative and provocative way.
- The overhead and vertical components must be joined, and together should imply both the interior “space,” and an exterior form that strengthens the overall design intent and is interesting to look at.
- The size, scale, configuration, and mode of observation of your installation is limited only by what you can construct with your plywood and 2x4s
- Your installation must be independent, self-supporting, not leaning on, connected, or tethered to other structures or the ground.
- Although the primary focus should remain on “observation,” and each team must design and build a single booth, consider how your installation “fits” alongside its adjacent neighbors on the porch.
- It must fit and “function” for a real viewer on a Sept., afternoon, rain or shine.
- Your design process should get to “full-scale” and “on-site” mock-ups (e.g. in cardboard) as soon as possible (perhaps by the first mid-review), so you can observe your installation under real conditions, and can modify the design at full-scale for best results. Build flexibility in your design and process. If you make a mistake, work with it, allow process to help drive the results.

TIME LINE
This is a two-week project. We will create the teams and start designing the first day of classes (8/27). A final review will take place rain or shine, on Mon. Sept. 10, on the front porch of CFA during studio.

DELIVERABLES
- Each studio will demand you explore and design in many different media and at many scales simultaneously during the design process. The final “deliverables” will be limited to 3 items:
  1) the 3D installation your team constructs on the CFA front porch;
  2) a large-scale (3”=1'-0”) building section drawn through your installation showing how it “works” as an observation device with water, light, etc.;
  3) a 2pp. “Documentation” using the 2nd year “template”, featuring process work (sketches, models, and other drawings), photos of the completed installation, and your drawn section.

SHOP SPECIFICS
- SAFETY: The Architecture shop at CMU is a wonderful but dangerous resource. Our biggest concern is your SAFETY. Every year someone in the 2nd year gets hurt on one of the big machines: please be sure it’s not you or those around you!! Please review all safety procedures, as well as all rules that have been set out by Scott Smith, Bruce Miller and the shop monitors. Failure to do so will lead to loss of shop privileges, grade reductions, or worse.
- CLEAN-UP: Among the most important “rules” of any shop is the need for everyone to clean up, and maintain a safe and neat working environment. Unlike the studio, a mess in the shop can be dangerous! Be sure the area is clean and on your work table is clean before you start working, and be sure you clean up all scraps, sawdust, tools, and other objects before you leave. Doing so, will allow more people to use the shop efficiently, and will allow Scott and his staff to help you more on the projects. I have also instructed Scott to notify me about any student who fails to clean up or do their share of cleaning up after the whole group!
- COST: This initial shop project is new to the 2nd year. We will follow the same procedure as during your Freshman fall; the shop will bill you a small “Shop Fee” to cover the plywood, screws, and a few special tools we’ll make available for working outside the shop.

ASSEMBLY with SCREWS: In order to maximize recycling potential, and minimize the volume of waste, all work must be disassembled into component pieces after the final review, then separated into recyclable pieces, and non-recyclable waste. To facilitate disassembly, all projects should be constructed only with screws or other fasteners that can be removed, and NOT with glue or nails.

CARE: We have received special permission from the Dean to use the front porch of CFA as a site for our observation installations, and as a work space. It’s a wonderful site, and will make our work accessible and visible to the community. In return, we must take extreme care to protect the site: a) follow all rules with respect to the boundaries and limitations of the site, being sure it remains accessible to the rest of the college; b) the stone floor surface cannot be manipulated; no paint anywhere on the project; no glue or caulk can be used outside on the porch; if necessary we will put down a protective tarp or building paper to protect the stone floor; c) the public nature of the site will require us to be vigilant with tools and materials, as well as to clean up more thoroughly while working, as well as before you leave for the day; d) there will be a white tent set up on the front porch to store our work after hours and keep it dry.

PROJECT 1 – OBSERVATION / INSTALLATION

THE MINDSET
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INSTALLATION SPECIFICATIONS
- Each studio will be divided into three teams of approx. 4 students.
- Each studio will be assigned to a small area on the CFA front porch (see diagram next page); the teams within a studio should negotiate so that they all fit
- Each team will be given 2x4s and plywood sheets for the primary armature of their installation. They can be cut or joined in any way.
- Each team will be allowed to add one more material (e.g. fabric, cardboard, glass, plastic, sheet metal, wire, mirrors, in a reasonable quantity, to amplify and complete their design intent, but not primarily to increase size.
- No paint or spray paint of any kind allowed.
- Each team may use as many fasteners as necessary
- Minimize waste; attempt to use all materials; work to recycle.
- Each installation must include an overhead component (roof) that shelters, controls or manipulates light, rainwater, views, and the sky
- Each installation must also include a vertical component (wall) that seeks to filter, block, focus, transmit, amplify or otherwise engage the surrounding context in a creative and provocative way.
- The overhead and vertical components must be joined, and together should imply both the interior “space,” and an exterior form that strengthens the overall design intent and is interesting to look at.
- The size, scale, configuration, and mode of observation of your installation is limited only by what you can construct with your plywood and 2x4s
- Your installation must be independent, self-supporting, not leaning on, connected, or tethered to other structures or the ground.
- Although the primary focus should remain on “observation,” and each team must design and build a single booth, consider how your installation “fits” alongside its adjacent neighbors on the porch.
- It must fit and “function” for a real viewer on a Sept., afternoon, rain or shine.
- Your design process should get to “full-scale” and “on-site” mock-ups (e.g. in cardboard) as soon as possible (perhaps by the first mid-review), so you can observe your installation under real conditions, and can modify the design at full-scale for best results. Build flexibility in your design and process. If you make a mistake, work with it, allow process to help drive the results.

TIME LINE
This is a two-week project. We will create the teams and start designing the first day of classes (8/27). A final review will take place rain or shine, on Mon. Sept. 10, on the front porch of CFA during studio.
A restriction of view places emphasis on observation through a single vertical slit, which occurs at the moment where the architecture does not touch. The result is a play on public versus private positions of observation, as the observer can only partially view those outside the installation, while outside viewers can see the observer as an object for display - a shadow on the structure's stretched fabric. The formal gesture derived from the restriction of view is meant to cause new contemplation of the site as the everyday act of observing occurs three feet lower than normal.

Josh Marshman
PROJECT 2 – OBSERVATION / STRUCTURE

MINDSET:
In the first individual studio project we will build on the idea of “observation” and interacting with the environment around us. Here the focus will be on the primary “elements of architecture” and their potential to create rich experiences on many levels. The small scale and natural context of the project will allow you to work at several different scales, and to develop each architectural element fully in itself, and as part of an integrated whole.

PROJECT
Your charge is to design a small observation structure along Outlook Drive at the top of Schenley Park to help users observe and engage nature, the surrounding landscape, and the views of Pittsburgh in multiple ways. Your project should operate on several levels: as a platform to celebrate views out into the landscape; as a modulating device to frame and filter the light, air, sounds, and water coming into your structure; as an instrument to study the concept of “observation”; as a dispenser of water, maps, information, and shade to the park visitor; as an armature to choreograph motion and experience through your spaces and into nature; and always able to move forward with the ideas at hand, rather than needing to “start over.”

PROGRAM
The structure must contain three distinct spaces, each 80-100sf, plus minimal space for circulation. These can be arranged in any relationship to each other, and to the site, though they must be physically connected, either vertically or horizontally. The overall maximum height for the structure is 30ft, plus a roof. In order to minimize impact on the site, all spaces must be on or above ground level.

The programmatic requirements of the spaces are as follows:
1) one space must dispense water and information about the park and city;
2) one space must be enclosed and carefully modulate the elements of nature (light, air, water, sound) flowing through its walls in both directions to create a rich experience and enhance an understanding of the context, and the nature of observation and how we observe;
3) one space must be a viewing platform open on at least three sides, with a place to sit;
4) there must be a roof or canopy covering the top of your structure;
5) one space must be accessible to a wheelchair from Overlook Drive.

THE SITE
The site of your observation structure can be anywhere on or near the large field alongside Overlook Drive at the top of Schenley Park (see the dotted line of the aerial view), and must be approved by your instructor. Pick your site carefully, including relationships to the slope, to views, to trees, to the street, and to the ice-rink, such that it reinforces your ideas on observation and how you want visitors to use your structure.

- The entire 2nd year should collaborate to agree on and create a long site section and/or an accurate topographic plan of the area.
- Each individual studio should document the site through photos, environmental data obtained through library and computer research, as well as studio-specific, "working models" of the site at the instructor’s discretion.
- Each student will be required to include an appropriate amount of the site in every drawing and every model that includes accurate dimensions for all slopes, trees, roads, buildings and other parts of the context.

PROCESS
A major goal of the 2nd year studio is to keep developing a robust design process in each student. Over the course of the year we will work towards having longer design projects, less regulation of the design process, fewer imposed requirements, and a greater chance to explore the particular intent of your design. We will work towards this goal in several ways:
1) integrated research: you should integrate design and research, both in the form of smaller, exploratory design exercises, and through the parallel analysis of other buildings and related ideas, both by yourself and in groups
2) iterative design: your design process should be iterative, working to find alternate and multiple solutions at all points of the process, rarely bound to a single aspect, and always able to move forward with the ideas at hand, rather than needing to “start over.”
3) synthesized elements: you should work simultaneously on the design of the whole, and the design of individual elements, at several different scales, and in different media, moving back and forth between the elements
4) quality process: your design process should include multiple drawing types, a variety of media, and a range of speeds, and all drawings should be done with intensity to achieve high quality results. At any point in the design process, you should have a “complete set” of high quality drawings available for feedback on your desk, rather than many incomplete fragments of process work, layers of poorly drawn plans, or lackluster sketches. Create drafts of all drawings earlier in the process; don’t ever wait for the final presentation to draw something for the first time. Each drawing requires drafts.
5) effective communication: “deliverables” at mid-reviews and the final review should be kept to a minimum, less than might ordinarily be needed to explain the full extent of your design, thus demanding that you maximize the content and impact of each presentation piece.

DELIVERABLES & FINAL REVIEW
Each instructor will have slightly different pedagogical methods regarding the design process. In order to share results from studio to studio, and to encourage a more robust design process, higher quality, and more comprehensive “process work,” all students will be required to submit several pre-determined process drawings in the course of the project.

The primary tool for presenting your process work in this project will be building sections and plans. These will allow you to communicate clearly the horizontal layout and vertical composition of your building in relation to the landscape, as well as details about how the walls and roof allow the flow of light, air, and water in and out of your building.

The final review will likely be limited to ONE INTEGRATED DRAWING, and ONE MODEL, requiring careful coordination of your idea with the specific drawing type: details to be announced at mid-review.
STATEMENT

To capture and amplify environmental light and color while creating a private experience of the site. Light filters into the pavilion and bounces off the water creating an interesting spatial condition, a condition that changes as time progresses, noon or sunset are two completely different experiences of the site, so is winter and summer.

Max Arocena
PROJECT 3 – HOUSE PROJECT

Mindset:
This project continues the exploration of “Composition” as the main theme of the semester. The “Museum Annex” project stressed the development of “Concept,” (Idea) and attention to “Context” (Site), as well as “Content” (Program). Having begun to integrate these into your design process, this next project (as well as the Building Study) offers the chance to explore “Composition” on a more fundamental level, in relation to “Building Elements” and how they go together, as well as the development of spatial sequences on a more refined scale. By reducing the scale and complexity of the project, you have the opportunity to focus on each element more intensely, and through its relation to others, and to the whole, begin to create an architectural language that works from the smallest to the biggest scale. The challenge will be to create rich, intellectually challenging architecture that nonetheless is well developed.

Project:
Each studio will explore their own vision of a “house” program, with the common goal of creating a small space for a single person in a natural setting, as follows:

DAMIANI STUDIO - Towards a Design Process: Farnsworth House Visitor’s Center
The project is to design a new visiting artist studio and visitor center for the Farnsworth House, which we visited earlier this semester on our Chicago Fieldtrip. This project is to reconsider the role of the information center as a welcoming transition for tourists visiting the home. The programmatic elements are to be similar to that of the current information center with the addition of a modest live/work studio for a visiting artist. This modest LW space will also act as an occasional guest house.

CALISTI STUDIO - Visiting Archaeologist Live+Work Space
The University of Pittsburgh’s internationally recognized Department of Anthropology and Department of History of Art and Architecture have commissioned you to design a SMALL living space to house an “archaeologist-in-residence” as well as a small work space/studio.

LUBETZ STUDIO - Living Space/Studio for a Writer (Moya Studio)
Site: A tree covered site on Sampsonia Way, near the Mattress Factory. This writer is part of the City of Asylum/Pittsburgh Project. The City of Asylum was established by several Nobel Laureate writers to provide refuge and sanctuary for writers who are being persecuted in their own countries. Requires spaces to write, sleep, eat/cook, bath, sit/relax.

MINNERLY STUDIO - “Director’s House: Homewood Cemetery
The Homewood Cemetery has recently hired a new highly regarded director. As part of the compensation package the cemetery has agreed to provide her a small personal space of her own located with a relationship to Frick Park. For the director, you should provide a space to sleep, to cook, to eat, to bathe, to study, for guests, to hang 2 Picasso prints, and assure access and view of the park.

WOLFF STUDIO - “The American House”
In this second project, students are asked to question the existing model of the American house. The studio should become a laboratory of investigation through which to analyze, challenge and critique this existing paradigm. The objective of the project is for students to personally redefine the meaning of house in their culture and to reinvent a new type for the American house. Inspired by the spirit of Art and Architecture magazine’s Case Study House program, the objective is to create a new vision of the American house, expressive of our current society and simultaneously theoretical, experimental and specific. In nature.

Studio Damiani
CMU, Arch #48-200
Fall 2006, M/W/F 1:30-4:20 Office Hours: By appointment

Project Statement: Towards a Design Process

Visiting Artist Studio and Visitor Center for the Farnsworth House
http://www.farnsworthhouse.org/

Having visited the Farnsworth House this past September, you have viewed firsthand the Farnsworth House’s spatial expression as well as the home’s high level of material refinement. The qualities of this home and its unique relationship to its landscape act at both a physical and a sublime level to the visitor.

During this same visit you were able to view the arrival and pedestrian sequence to the home from the information center. This pedestrian sequence through the grounds of the estate provides a visual debriefing from the information center and parking area.

The Landmarks Preservation Council of Illinois, the owner of the Farnsworth House, is interested in preserving the visual qualities of the home while addressing the need to redesign the current information center.

This project is to reconsider the role of the information center as a welcoming transition for tourists visiting the home. The programmatic elements are to be similar to that of the current information center with the addition of a modest live work studio for a visiting artist. This modest LW space will also act as an occasional guest house.

Program:
Having previously visited the information center, you should have a good sense of the spatial necessities of this facility. For your use listed below are the current square footages of the existing structure.

Gift Shop/ Ticketing: 400 sq. ft.
This area is to include display shelving and tables as well as a counter for merchandise sales and ticketing.

2 Unisex Restrooms: (2) @ 60 sq. ft.
Each restroom is to have a min. 3’ x 3’ shower area for guests.

Resource Center: 120 sq. ft.
This area is for visitors to review the construction documents of the home as well as other items that pertain to the home and its architecture.

Small projection area/ gallery/ lecture area with stackable seating: 400 sq. ft.
This area is for small receptions and exhibitions and to be a place to view a short film about the residence and the Landmarks Preservation Council of Illinois. This area can as well be used as a small lecture area for visiting artists and scholars.

Storage/ Mechanical Room: 120 sq. ft.
Live/ Work Studio: As required
This single space is to contain a modest working area, a compact sleeping area as well as a small kitchenette.
THE FIGURING OF ABSENCE

The design is an aid in understanding both the Farnsworth House and the ideas of Ludwig Mies van der Rohe. It introduces the visitor to Mies’s structural vocabulary and examines details in detail. As structure grows in scale, it becomes inhabitable space. When occupied, the visitor is submerged in what Peter Eisenman called “the figuring of absence,” where the voids in Mies’s details become inhabitable space that is connected to its natural surroundings.
CONCEPT STATEMENT

The spatial and formal arrangement of the residence is derived from the layering and stacking of information found pertinent to the context as well as life of an Archaeologist. Discovery of the past would lead one to understand the details and process that made the residence a complete composition. The 'crafted' thresholds, materials, joinery, and spaces would lead one to an understanding of formed architectural space and the simple archaeological elegance that drives the passion of their field.

-Christopher Gallot
PROJECT 4 – LIGHT MUSEUM ANNEX

Mindset / Objectives / Agendas: In Project 4 we will move from the relatively quick design of a small, simple park structure, to an extended exploration of a larger, more complex cultural program dedicated to observation and the arts in a tight urban setting. 

In addition to our general studio charge of creating rich and memorable spatial experiences, there will be three primary agendas in this project: 

1. a focus on DAYLIGHT and its absence, how to amplify and control light, and the effects it can have on observation and experience, particularly in a museum; 
2. a focus on the ROLE of PROGRAM and the process of determining the hierarchy, adjacency, and quality of each space as an integral part of the design & inspiration process; 
3. a focus on the URBAN setting, the implications of context, and understanding the influences of architecture from and onto the surrounding city context.

It will be crucial to develop a rich and effective design process that will allow you to understand and synthesize solutions for a wide array of complex issues in a systematic, gradual, and progressive way, making and sticking to important decisions along the way. With such a complex program, you can’t wait until the end to bring all the ideas together.

Project Brief: Based on the success of the Carnegie Museum’s 2001 “Light!” exhibit, and the increasing use of digital and electronic technologies in the conception, design, realization, and experience of architecture today, combined with the mandate that architects make the public more aware of light, this project will mark an important milestone in the museum’s ongoing commitment to explore light in art and architecture.

Your charge is to design a small but innovative exhibition and study center for a growing collection of modern and contemporary art that relates to “light” in a broad variety of ways. The building must enrich the visitor’s and observer’s understanding of light as central to how we see and understand all art, architecture, and the world around us.

To encourage creative and in-depth explorations of daylight by young architects, the Veal Foundation will sponsor a small competition in our studio related to the theme of “Light in Architecture.” With the help of personal research, discussions with your studio, as well as a series of guest lectures, you are expected to develop a sophisticated and deep understanding of the proposal about light in a “Light Museum” that will be judged by invited critics and publicized by Velux.

The project will require three primary programmatic elements with support spaces: 

1. a series of linked exhibition spaces, each with specific light requirements, and some minimal support and staging areas; 
2. a study and storage center that will allow curators and a select public to study a greater array of art works more closely; 
3. an entry space that facilitates access to these two spaces, but also conceptually and physically connects the “Light Museum” to the main museum, the street, and neighborhood. The annex will have access to all of the existing CMoA resources, support, and administrative spaces, but should have relatively self-sustaining exhibition and work space. More detailed program requirements will be developed and released in the course of the project.

The annex should be created as part of larger and ongoing effort to improve the Oakylvania cultural corridor, and continue to reinforce the importance of culture and the arts for Pittsburgh more generally. It must thus strive to become an integral part of the street, neighborhood, and Pittsburgh region, to engage the urban context and the existing CMoA building in a manner that ties in closely to the concept and program.

Process: The design process will begin with research into existing museums, into the contingencies of the urban site, and the construction of programmatic massing models in order to shape the optimal adjacencies, opportunities for enriched light conditions, and strategies for exploited spatial and light experiences. Further research will investigate the use of light in other museums and in spaces in the work of several important modern artists. After a very detailed program requirements, students will be expected to work methodically towards satisfying the primary agendas of the project while ensuring memorable observations and spatial and light experiences.

Requirements & Due Date: All projects will be DUE Sun. Dec. 2, 10:00pm. Computer printouts will be due SEVERAL DAYS EARLIER! The overall presentation should be carried over as part of an integrated set of “technical” and “experiential” drawings, along with computer & physical models, likely at 1/4" scale. All presentations will be on 44"x88" panels. A list of final presentation requirements will be distributed after the mid-review.

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Process: The design process will begin with research into existing museums, into the contingencies of the urban site, and the construction of programmatic massing models in order to shape the optimal adjacencies, opportunities for enriched light conditions, and strategies for exploited spatial and light experiences. Further research will investigate the use of light in other museums and in spaces in the work of several important modern artists. After a very detailed program requirements, students will be expected to work methodically towards satisfying the primary agendas of the project while ensuring memorable observations and spatial and light experiences.

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Mindset: The basic intent of this assignment is to research an existing museum, and then "reverse engineer" and decipher the original, abstract, blocky, programmatic massing model that generated the final museum. DUE: Mon. Oct. 15, 2007. The work process:

1) FIND as much visual and text-based INFORMATION on the museum building that you have chosen (or been assigned) as you can in a brief period of time. You will need:
- accurate floor plans to be enlarged -- sections to be enlarged -- orthogonal 3D views such as axon -- diagrams or other visual devices used by the architect to explain the building's design & intent -- photos, perspectives, etc. -- statements by the architects and/or critics.

All of the buildings in the list are circulated by very well-known architects. You should be able to find information in the following places:
- monographs on your museums (only few museums have this) -- monographs on the architects -- books on museums -- more general books such as "Dutch Architecture" or "The New Generation in Germany" -- architecture magazines in ANY language (use Avery Index to find citations) -- the world-wide-web (useful for photos, but usually not for technical plans; remember to check "Google Images" but also websites that seem not to have much visual info)

You should be prepared that many books will be checked out. Ask around the studio for who is doing buildings by the same architect. You may need to rely exclusively on magazines if everything is checked out. If you have trouble finding enough info, email me and your instructor immediately.

2) ANALYZE & INVENTORY the plans, sections and other information you found. Look for IDENTIFY the "primary programmatic components" of your museum design, as conceived by the architect. Work to find "categories" or "types" of programmatic elements, such as the following main categories:
1) all the major galleries, as well as subsidiary galleries (e.g. dark vs light galleries) in a separate grouping
2) all the major non-gallery, public spaces such as auditoriums, cafes, bookstore
3) the major entry and circulation spaces, including lobby, main corridors, main stairs/escalators, rooftop terraces, elevators
4) the major agglomerations of "non-public" spaces such as staff offices, curatorial spaces, study spaces, art storage spaces, meeting rooms, etc;
5) where appropriate, also locate the major structural & mechanical components or spaces of your building, especially if they are clearly visible in your plans and their mass (even just thick posts) seem to come up in diagrams or as an organizing principle of your building.

The intent is to find all the "major" programmatic components, though not necessarily catalogue EVERY space. Your analysis will still LEAVE OUT many of the spaces in your museum such as public bathrooms, coat rooms, as well as a host of subsidiary functional components. This will lead to a certain POROSITY in your model.

Some reference sources will have more information on this than others, but in all cases you will need to INTERPRET the technical information you find. This analysis will require a good bit of guess-work, intuition, and creative thinking.

3) ABSTRACT, REDUCE & ORGANIZE the complexity and number of all the pieces and components down to the essential "blocky" components. GROUP them into the major categories listed above. Possibly subdivide the groups to indicate major differences of program, if it leads to a much clearer understanding.

Identify the ADJACENCIES intended by the architect, what pieces are located next to, or on top of which others. Understand WHY the architect arranged the pieces as s/he did, both in plan, and in section, as well as in SEQUENCE. What is the procession of major spaces experienced by the visitor? What are the major LIGHT conditions created by locating the space near an exterior wall or on top of the building? Are there separate major circulation systems for staff or for art works from loading docks into the galleries? You should look for CONFIGURATION, but NOT necessarily the SHAPEs or FORMs used by the architect. Work to separate the "components" from the "envelopes.

Reducing the complexity will necessarily leave out much of the major design and experiential aspects of the building, even such things as whether the building seems more "fluid," "curvy," "choppy," or "rectangular."
PROJ. 4 – PROGRAMMATIC MASSING MODELS - Assignment #2

Background: The basic intent of this assignment is the reverse of the last one, working to create a single massing model for your “Light Museum” in the context of the Forbes Ave. site, ideas about light, and experiences for a museum visitor, using abstract, blocky program masses. DUE: Wed. Oct. 17, 2007. The suggested work process:

1) READ carefully the detailed program for your “Light Museum” on the back of this page. Note the larger categories, gallery space, study center, entry, support. The number of detailed spaces described within each category. Note the different ways that each room has been defined in terms of sizes (some by square footage, some by number of people, some by furnishings), and the light conditions for each space. Consider how this museum compares to or differs from the museum you studied in Assignment #1.

2) TRANSFORM & SKETCH as you read the program, take VISUAL NOTES of ideas for each space that comes to your mind in terms of LIGHT conditions, LOCATION in relation to the street, roof, and other spaces, the SIZE in plan and in section, and perhaps the kind of ART you would like to see exhibited in each space. Use some sort of system to chart relative sizes of each space. The simplest one is drawing a series of separate boxes with correct square-footages on paper or on the computer. Another way would be to start with a series of “volume blocks” (perhaps 100sf X 12sf high), and begin to group them, then pile them according to your ideas on spatial sequence, etc. Are there other ways to do this even more creatively? Try to include ideas about light (direction, amount), adjacency (what is next to what), and general spatial quality (long and skinny, tall, dark, welcoming, etc.) in your first sketches. As you create each program space, keep coordinating it with the overall intent. How big is your building and how do you fit it on the floor plan (250sf max)? What is the overall sq. ft. of programmed space (ca. 700sf + outdoor spaces)? How high is your building (3 stories? How “porous” (20%)?

3) ABSTRACT & ORGANIZE the great complexity of the program, and the great number of separate rooms and spaces, into a smaller set of “blocky” masses that will begin to define your “Light Museum.” Avoid modeling the same more specific ideas for a Light Museum on Forbes Avenue. Should each gallery be its own “block,” or should each space be proportioned in your first sketch? Why? As you abstract the groups of spaces, you should confirm a HIERARCHY (which is the most important? which is the biggest?..), as well as SEQUENCE (which comes first, how does it lead to the next, where does it end, what is the “return trip” for the visitor), and the LIGHT conditions required and allowed in each space. STAY ABSTRACT.

Your process of reducing the complexity, abstracting the program, and organizing the pieces should eventually translate into a DIAGRAM of some of your spatial and programmatic thinking—hopefully more than just a bubble diagram.

4) BUILD a 3D programmatic massing model from your sketches that includes adequate “void” or “open” space to fit other subsidiary pieces of your program: build in a certain “POROSITY.” As you “pile” the blocks, choreograph the kind of spatial and light experiences you want visitors to have, and try to number these in the SHEAFE or FORMWORK.

This will require several attempts, “drafts.” You should devise a flexible 3D block system that you can rearrange several times. Consider working with small “chunks” of space (e.g. 100sf X 6 ft – using a 6ft height block may help relate it to (all) human scale, and when doubled to 12sf will yield a good floor-to-floor height for support and study spaces, or when tripled to 18sf, start to define a minimum height for a decent gallery space). Work quickly and flexibly at first. The first 3D models can be done as sketches, or on the computer, where at some point be translated into a physical model. Work without permanent glue at first (perhaps double-stick tape at first) so you can rearrange easily. Once you have several of these “drafts,” so you can remember your own creative process. You will be expected to create several updated versions of this massing model over the next few weeks, always revising existing ideas, beginning to incorporate more inspirations and constraints and produce a richer, more sophisticated set of spaces and experiences.

The model should follow the same guidelines as in Assignment #1, except that you should build your own expanded version of the SITE PLAN. It must be solidly, ideally of remodeled blocks, except for dimension, proportion, and orientation, and each of the main spaces should be identified by color, material (orientation of grain), or with words.

5) DRAW a series of vignettes to describe the QUALITIES of each of the main spaces you have identified, much in Assignment #1.

ARCHITECTURE STUDIO: 2nd Year F’07
Fall 2007, CMU, Arch #488-200, MW/F 1:30-4:20
Email: gutschow@cmu.edu

Program:
Your building MUST contain ALL of the following programmatic elements:

1) GALLERIES: A series of four flexible exhibition spaces for rotating installations dealing with light, art, architecture, and the world around us, according to the following criteria:
   a) a 1000sf gallery that receives NO NATURAL LIGHT, and can be completely closed and dark, to be used for showing very sensitive drawings, or appropriate light art (e.g. need to avoid installation. The room must have an entry sequence that prevents all light from entering the space, using either two sets of doors, or a snaked entry way.
   b) a 1000sf gallery that receives only INDIRECT LIGHT from ABOVE, some of which may diffuse through a screen or shade, from one separate surface of the room (ceiling, side wall, or two separate walls.
   c) A 1000sf gallery which has EXTENSIVE DAYLIGHT, and has direct access to exterior walls from at least two different directions, through separate surfaces of the room (ceiling and wall, or two separate walls.
   These three gallery spaces (a-c) must be a fully enclosed rooms, secure, and conditioned (heated, cooled, and humidity controlled) to existing museum standards. The three indoor exhibit spaces must be flexible to allow a great variety of installation types, including plenty of tall walls surfaces for wall-mounted objects, and open space to place partitions, sculpture, or display cases.

In addition, these spaces should be clearly linked horizontally, vertically, or diagonally into a carefully choreographed sequence for the museum visitor. Where the above-mentioned light-requirements allow, they can be open to each other, or separated by a movable partition, door, or short circulation space such as corridor, star, or elevator. Although you have access to the loading dock and storage facilities of the main museum, you should consider how large artworks will enter your spaces. Will a large sculpture fit through your front door? If not, how else might it get in?

d) an OUTDOOR exhibit space, exposed to (some of) the elements, either on the roof or large balcony, or an open space partially nestled in the “porous” building volume, but still outside. It must be secure, accessible only through the museum entrance, and thus likely not at street level on our light site. The outdoor space can be any size, though it should be large enough to hold a reception for 25 people alongside some art pieces.

2) STUDY CENTER: A series of four linked rooms that together make up a museum-quality study center for art and artifacts related to light in art, architecture, and the world around us, according to the following criteria:
   a) a “reading room” for viewing art that includes: a) two large reading tables (each at least 5′ x 10′) with accompanying chairs; b) a large vertical wall surface for hanging a painting; c) two computer stations. The room must receive indirect daylight, though the computer terminals must be screened from glare.
   b) a large vertical wall surface for holding and access 6 large plan-file drawer cabinets, each 60″ wide x 48″ deep and 48″ tall. Be sure to allow enough room to fully open the drawers and stand in front of them.
   c) a mezzanine space with storage space with no natural light, to include 25 linear feet of shelving units, and appropriate racks to hold at least 25 large (at least 5ft x8ft) paintings in frames.
   d) a curatorial office for at least two museum staff and requisite office desks and equipment.

3) ENTRY HALL: Access to the museum should be choreographed through a small but intimate sequence of spaces, beginning with:
   a) an entry hall that connects to the main museum across the street, you will be able to keep these to a minimum. Nonetheless, the main entry hall must be no more than 500sf., a small, efficient space that leads to generous galleries.
   b) include a ticket and information counter.
   c) include open floor space for a group of 25 people (such as a group of school kids) to stand without restricting the accessibility of the counter, entry, or galleries.
   d) clear entries to galleries and to all requisite support and circulation spaces (elevators, etc.)
   e) the entry space must be primarily daylit, and must be able to be naturally ventilated or partially opened to the outdoors in a secure way on nice days. Because of the daylit and natural ventilation amenities of this space, access to the galleries must be through doors or an airlock system to prevent humid air and harmful light from reaching the art works.

4) SUPPORT SPACES: Since the “Light Museum” has access to specialized support spaces in the main museum across the street, you will be able to use these spaces for:
   a) a coat-room directly adjacent to the entry space with 10 linear feet of coat and bag racks and a desk for the entry hall staff.
   b) at least one women’s, and one men’s handicap accessible toilet.
   c) ADA accessible circulation space to ALL the main rooms and spaces in the museum, with vertical circulation either through an elevator, or ADA-approved ramps.
   d) mechanical spaces (a total of approx 400sf).

1 The Americans with Disabilities Act (ADA) guidelines recommend a slope no steeper than 1:12 - 1 ft. change in elevation for every 12 ft. of length. This means you need 1′ of run for every inch of rise. There’s nothing to say that you can’t make a ramp longer, with a more gradual slope. The degree of slope depends on the user’s physical abilities. For example, if a person has a motorized wheelchair, the 1:12 slope might be fine. But if the user relies on their own power to wheel up or down a ramp or walk up with crutches or a walker, a more gradual slope is easier to negotiate, such as a 1:16 or 1:20 slope. This would be subject to any necessary state code regulations. A specific plan for a fire stair or escape that ensures two means of egress from all primary floors of the museum. Because this is your first complex program, you are encouraged (but not required) to investigate and include all such architectural requirements in your building.

Koolhaas, Ca’ Musica Program

Koolhaas, Ca’ Musica Program
Part of a booklet made to document the 2007 Velux student competition

**VELUX LIGHT MUSEUM COMPETITION**
Carnegie Mellon University School of Architecture
2nd Year Design Studio Fall 2007

**SPONSORS**

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Carnegie Mellon University
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Spikal Wolf, Studio Instructor
Jonathan Gold, Studio Instructor
Laura Lee, FAIA, Head of the School of Architecture

Booklet designed by Michelle Lopez

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**MINDSET**
In this project, students moved from a relatively quick design of a small, simple park structure, to an extended exploration of a larger, more complex cultural program dedicated to observation and the arts in a tight urban setting.

In addition to the general studio charge of creating rich and memorable spatial experiences, there were three primary agendas in this project:

1. **A focus on DAYLIGHT** (for its absence), how to amplify and control light, and the effects it can have on observation and experience, particularly in a museum

2. A focus on the role of PROGRAM and the process of determining the hierarchy, adjacency, and quality of each space as an integral part of the design & inspiration process

3. A focus on the URBAN setting, the implications of context, and understanding the influences of architecture from and onto the surrounding city context

**PROCESS**
The design process began with research into existing museums, into the contingencies of the urban site, and the construction of programmatic massing models in order to shape the optimal adjacencies, opportunities for enhanced light conditions, open spaces, and exciting museum experiences.

Further research investigated the use of light, ideas, and space in the work of several important modern artists. After being introduced to very detailed program requirements, students were expected to work methodically towards satisfying the primary agendas of the project while ensuring memorable observations and spatial and light experiences.

It was crucial for students to develop a rich and effective design process that would allow them to understand and synthesize solutions for a wide array of complex issues in a systematic, gradual, and progressive way, making and sticking to important decisions along the way.

**PROJECT BRIEF**
Based on the success of the Carnegie Museum’s 2001 “Light” exhibit, and the rich tradition and continued importance of “light” in modern and contemporary art, the museum had decided to expand its Oakland building complex with a “Light Museum,” an annex across Forbes Avenue that would be purpose-built to explore light in art and architecture. The students’ charge was to design a small but innovative exhibition and study center for a growing collection of modern and contemporary art that relates to “light” in a broad variety of ways. The building was to enrich the visitor’s and observer’s understanding of light as central to how we see and understand all art, architecture, and the world around us.

The increasing use of digital and electronic technologies in the conception, design, realization, and experience of architecture today, combined with the mandate that architects marshal resources and energy-use in an increasingly responsible and sustainable way, makes the savvy use of light, and especially daylight in architecture, all the more urgent.

The annex required three primary programmatic elements with support spaces:

1. A series of linked exhibition spaces, each with specific light requirements, and some minimal support and staging areas
2. A study and art storage center that will allow curators and a select public to study a greater array of art works more closely
3. An entry area that facilitates access to these two spaces, but also conceptually and physically connects the “Light Museum” to the main museum, the street, and neighborhood.

The annex was to be designed as part of a larger and ongoing effort to improve the Oakland Cultural Corridor, and continue to reinforce the importance of culture and the arts for Pittsburgh in general. It was to be designed as an integral part of the street and neighborhood, and Pittsburgh region, to engage the urban context and the existing CMU building in a manner that ties in closely to the concept and program.
THE JURY

The Velux Corporation, the world leader in roof windows and skylights, has been running international student competitions for several years around the very broad theme of “Light in Architecture.” The CMU competition was an in-house process based loosely on these competitions. On January 18, 2008, a distinguished jury of local architects and professors met to review, discuss, and decide on the winners of the 2007-2008 Velux Competition, held in the 2nd year studies of the CMU School of Architecture. The winning schemes and honorable mentions will be encouraged to submit their schemes to the Velux International Student Competition, due this May, with judging in June 2008 and a big awards ceremony in Tain in November 2008.

JURY:
Gary Carlaugh, AIA, Principal, EDGE Studio, Pittsburgh
Ed Shriver, AIA, Principal, STRADA Architects, Pittsburgh
Greg Gallardo, AIA, Rothschild Ouyang Architects
Khue Phu Lam, PhD, Professor of Architecture, CMU
Jeremy Ficca, AIA, Assistant Professor of Architecture, CMU
Charles Rosenberg, Adjunct Assistant Professor, CMU
Terry Lynch, Velux

AWARDS

CMU and VELUX announced a public lecture on January 28, 2008, featuring architect Paul Lewis of the award-winning New York City firm Lewis/Tsurumaki/Lewis, to cap off the VELUX student design competition. Lewis, the 1998 winner of the Mercedes T. Bass Rome Prize in Architecture from the American Academy in Rome, spoke on issues of light, materials and assembly in architecture—themes that students explored in the VELUX competition.

Professor Laura Lee, Head of the CMU School of Architecture, announced the winners, and handed out awards to the winning students at the end of the lecture. The awards were: Grand Prize ($7,500), 2nd Place ($5,000), 3rd Place ($2,500), and Honorable Mention. Speaking for VELUX, Lee noted: “We applaud the efforts of these aspiring architects in thinking about the way light in architecture can enhance a cultural experience, as well as our daily living experience.”

AWARDED PROJECTS

1st Place
Roxanna Vitay
Joshua Manhman
Hiroyuki Ichikawa
Jadiga Podraza
Filip Agren
Kaitlin Miciunas
John Soh
Bishou Wang

2nd Place

3rd Place

Honorable Mention

Also Noted
1st Place: **ROXANNA VIRAY**  
Instructor: Jonathan Golè

“This clear project is a mature and nuanced synthesis of form, experiences, and urbanism based on the unifying theme of subtly modulated light. While sculpturally adventurous, this design is also structurally practical and responsive to program. Its compelling presence in both day and nighttime conditions underscores the sensitivity to light throughout.”

**Light Manifesto**

Contrast is the “ juxtaposition of different forms, lines, or colors in a work of art to intensify each element’s properties and produce a more dynamic expression” (Dictionary.com).

Natural light enters only from a skylight to filter into a light well, diffusing the harsh rays. This volume of light provides illumination for the extensive, outdoor and indirect galleries, lobby and office space. Inaccessible to the public, it is a display of light as an object from the aforementioned galleries. This light volume is contrasted by the heavy mass of the dark gallery. This negative gallery penetrates through the other public spaces to produce a dialogue between light volume and black mass. This disparity is further intensified in the journey through the galleries, following the path of a light beam reflecting off of oblique walls, where the dark space interrupts the flow through the day lit galleries.

A museum is thought of as a meditative space, but yet it is a museum that commemorates a vibrant energy of light. By defining an experience of contrast, the museum becomes a celebration of light.
2nd Place: Joshua Marshman
Instructor: Lee Calisti

“This project has a vivid sense of how light can percolate through a building and animate the experience of space and art. A wide range of graphic skills gives energy to the rich concepts underlying the design.”

Light Manifesto

Light pours into the building through a central fissure that affords each gallery specific qualities of natural light through an interior skin. The exact nature of light in each space is informed by a central contrast in programmatic requirements: the indirect light gallery, where light is diffused and most dynamic, suggests an experience where the architecture has a profound and altering effect on the viewer’s experience of art, while the natural and artificial light galleries remain as unimposing, highly modifiable spaces for the artist.

The architectural fissure occurs between the natural light and artificial light galleries, creating an indirect light gallery that circulates through the building about a central split. Light diffusing through the indirect light galleries defines a public entrance space, where views upward through the museum allow the building to become one massive object for the filtering of light.
Light Manifesto

Museums are often static and detached in experience due to fragmented spaces and surreal glowing lightings. My design is a reaction to that notion, a dynamic experience where the movement of people filters the light like an ever-changing kaleidoscope.

The galleries overlap each as they spiral up around a central void. Slits at the intersection of galleries allow for light and movement to penetrate through multiple spaces and into the central void. Transparent paths that connect galleries puncture out into the void where light from the galleries and from the top of the museum are scattered like paints of light upon the visitor.

As the visitor is immersed in the kaleidoscope of light, one connects the once detached spaces into one unified, dynamic experience of light and shadow.
Light Manifesto

A museum is a public space for viewing art. However, museum-goers tend to have a private interaction with the art, shutting off the distractions around them. Nevertheless, in the light museum, the public becomes more aware of their surroundings as they are forced to acknowledge the other museum patrons and the surrounding site. Each space in the museum filters light and shadow through different materials causing changing lighting conditions.

The light entering the direct-light gallery causes people’s shadows to affect the brightness of the lobby and indirect gallery space below. Similarly, this happens when people walk in the outdoor gallery space above. This is shown in the main rendering.

On the other side of the museum, the adjacent building’s red brick wall gives off a red glow through the translucent walls, thus making the museum-goer aware of the context outside. Each room in the museum uses the changing conditions of light to create different experiences inside.